Texas CTE: Health Science

Respiratory Therapy I

Implementation. A

1 The provisions of this section shall be implemented by school districts beginning with the 2022- 2023 school year. A.1

2 School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills) as an integral part of this course. A.2

General requirements. This course is recommended for students in Grades 11 and 12. Prerequisite: At least one credit in a course from the health science career cluster. Students shall be awarded one credit for successful completion of this course. B

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Introduction. C

1 Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions. C.1

2 The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development. C.2

3 Respiratory Therapy I is a technical lab course that addresses knowledge and skills related to cardiopulmonary medicine. Respiratory therapists are specialized healthcare practitioners trained in cardiopulmonary medicine to work therapeutically with people suffering from cardiopulmonary diseases. Students will learn basic knowledge and skills performed by respiratory therapists using equipment such as: stethoscopes, sphygmomanometers, thermometers, pulse oximeters, oxygen delivery devices (nasal cannula, masks of various types), nebulizers, and airway clearance and hyperinflation therapy devices. C.3

4 **Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations, including:** C.4

- A work-based experiences/learning; and C.4.A
- B volunteering/shadowing opportunities. C.4.B

5 **Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.** C.5

Knowledge and skills. D

1 **The student applies mathematics, science, English language arts, and social studies in respiratory therapy. The student is expected to:** D.1

- A interpret complex technical material related to respiratory therapy; D.1.A
- B identify how race, culture, and religion impact patient care; D.1.B
- C solve mathematical calculations related to respiratory therapy; and D.1.C
- D summarize biological and chemical processes that maintain homeostasis. D.1.D

2 **The student investigates the history and profession of respiratory therapy, including education and licensure. The student is expected to:** D.2

- A analyze the advancement of respiratory therapy practices over time; D.2.A
- B summarize the roles of respiratory therapists in various settings; and D.2.B
- C identify academic requirements for respiratory therapist and professional advancement opportunities such as professional organizations, credentials, certifications, registrations, licensure, continuing education, and advanced degrees. D.2.C

3 **The student applies regulatory and safety standards in a respiratory therapy setting. The student is expected to:** D.3

- A identify and conform to regulations and guidelines from entities such as the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA), U.S. Food and Drug Administration (FDA), The Joint Commission, the National Institute of Health (NIH), Texas Commission on Environmental Quality (TCEQ), Texas Department of State and Health Services (DSHS), and American Association for Respiratory Care (AARC); D.3.A
- B identify infection control standard and transmission-based precautions in the patient care setting, including hand hygiene, equipment sterilization, and the use of personal protective equipment (PPE); and D.3.B
- C identify industry safety standards, including standards for body mechanics, fire prevention, electrical safety, oxygen safety, and the handling of hazardous materials. D.3.C

4 The student investigates the structure and function of cardiopulmonary anatomy. The student is expected to: D.4

- A analyze the cardiovascular system, including ventricles, atrium, valves, blood vessels, nerves, blood flow, and cardiac conduction system; D.4.A
- B explain the respiratory system, including airways, trachea, lungs, and pulmonary vessels that aid the body in the exchange of gases; D.4.B
- C trace the blood flow through the cardiopulmonary system; and D.4.C
- D examine a variety of human diseases and disorders affecting the cardiopulmonary system such as chronic obstructive pulmonary disease (COPD), asthma, pneumonia, cystic fibrosis, and lung cancer. D.4.D

5 The student develops knowledge pertaining to respiratory therapy procedures. The student is expected to: D.5

- A demonstrate the use of breathing exercises for patients with cardiopulmonary disease such as pursed lipped breathing and diaphragmatic breathing; D.5.A
- B explain the use of hyperinflation and airway clearance therapies; D.5.B
- C explain the use of tracheostomy and endotracheal tubes and oral and nasal airway devices for assisted breathing; D.5.C
- D identify anatomy of the heart and lungs and proper endotracheal tube placement on X- ray; D.5.D
- E explain the use of oximetry and arterial blood-gases for patient assessment; D.5.E
- F identify and explain the use of the equipment for oxygen therapies such as nasal cannula, high flow nasal cannula, simple masks, air-entrainment masks, partial rebreather masks, and non-rebreather masks; and D.5.F
- G demonstrate the administration of oxygen therapy using oxygen concentrators and portable cylinders. D.5.G

6 The student recognizes cardiopulmonary pharmaceutical agents and safety and protocol measures. The student is expected to: D.6

- A identify medications used in respiratory therapy, including bronchodilators and inhaled corticosteroids; D.6.A
- B summarize indications, contraindications, and side effects of respiratory medications; D.6.B
- C discuss delivery of respiratory medications such as nebulizers and meter dose inhalers (MDI); and D.6.C
- D assess the impact of cardiopulmonary agents on vital signs. D.6.D

7 The student implements the knowledge and skills of respiratory therapy professionals in a laboratory setting. The student is expected to: D.7

- A demonstrate patient assessment of vital signs, including blood pressure, pulse, respiratory rate, temperature, oxygenation, and ventilation status; D.7.A
- B demonstrate patient positioning for respiratory comfort and procedures; D.7.B
- C demonstrate patient care techniques used in high stress respiratory therapy situations such as non-compliant, combative, and distressed patients; D.7.C
- D demonstrate correct cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED) skills; and D.7.D
- E demonstrate therapeutic communication appropriate to the situation, including communication with individuals with language differences/barriers and sensory loss. D.7.E

8 The student evaluates ethical behavioral standards and legal responsibilities in the respiratory therapy profession. The student is expected to: D.8

- A examine legal and ethical behavior standards such as the Patient's Bill of Rights, advanced directives, and the Health Insurance Portability and Accountability Act (HIPAA); D.8.A
- B investigate and discuss the legal and ethical ramifications of unacceptable behavior in therapeutic practice; D.8.B
- C research and describe role of professional associations and regulatory agencies; and D.8.C
- D describe ethical dilemmas in health care. D.8.D